

## ABSTRACT

The invention is a method of making a composite material (from a route given by the phase behavior of a suitable chemical system that is described in a phase diagram), which comprises at least one amphiphilic component and at least one polymer component. It comprises providing a mixture of at least one polymer and at least one amphiphilic compound in a volatile solvent or solvent mixture as well as providing a phase diagram of the chemical system that describes how the components of the chemical system interact in thermodynamic stable phases as a function temperature, concentration and pressure. The polymer should be a homopolymer, a random block copolymer or a mixture thereof, preferably biodegradable. The amphiphilic compound has the ability to form a bilayer-containing phase. The solvent is removed from the mixture by a process selected from the phase diagram in dependence of the final composite material to be achieved, whereby a material is formed, such as liquid extraction against a second solvent, or by spraying. It also relates to the composite material, in particular particles, solid implants, semi-solid, gel-like matrices, useful for applications such as encapsulation of therapeutically active components or surface coating.

(Fig. 1)